

**South Platte River Urban Waters Partnership (SPRUWP)**  
**QUARTERLY MEETING**  
**August 21, 2019, 12:30 PM- 3:30 pm**  
**Carson Nature Center**  
**Meeting Summary - FINAL**

*Attendance:* Karl Brummert, Cindy Chang, Amy Conklin, Ronnie Crawford, Rachel Crouch, Jim Dorcsh, Brad Evans, Sherry Fountain, Guadalupe Herrera, Jocelyn Hittle, Madelene McDonald, Jeff Medaugh, Brian Muller, Donny Roush, Mike Smith, Alison Witheridge, Laura Wolf, Shane Wright, and Joe Zell

*Facilitation:* Sam Haas and Samuel Wallace

**ACTION ITEMS**

<b>Alison Witheridge and Amy Conklin</b>	Send information about Denver Water's lead pipe program to Sam Haas.
<b>SPRUWP MEMBERS</b>	<ul style="list-style-type: none"> <li>• Contact Donny Roush to review the macroinvertebrate educational materials if interested.</li> <li>• Send suggestions for future speakers to Peak Facilitation Group</li> </ul>

**SPRUWP PARTNER UPDATES**

SPRUWP partners provided updates on their roles and current work priorities. Their comments are summarized below.

**Alison Witheridge and Madelene McDonald – Denver Water**

- Denver Water is undertaking an inventory assessment and prioritization for the Upper South Platte. The main factors they are analyzing are drinking water and drinkability. They will be presenting their results at the Sustaining Colorado Watershed conference in Avon, CO.
- Denver Water will be applying an inventory assessment and prioritization process on Chatfield and Bear Creek after they complete the inventory assessment and prioritization for the Upper South Platte.
- Denver Water are continuing to work on restoration projects on Elk Creek and Cheeseman Reservoir.

**Sherry Fountain and Laura Wolf – U.S. Forest Service (USFS)**

Sherry Fountain is the new Urban and Community Forestry Program Manager, and Laura Wolf is the new Utilization and Innovation Program Manager for the USFS. There are no updates as both are new to their respective positions.

**Ronnie Crawford, John Davenport, Jeff Medaugh, and Joe Zell – Trout Unlimited (TU)**

- Trout Unlimited has been involved with a project at the Sheridan River Run Park to increase the habitat for aquatic creatures. To create habitat, Trout Unlimited designed and helped install Long Underwater Non-Kinetic Embankment Replacement (LUNKER) pipes into the River Run Park. The LUNKER pipes are 24 to 36 inch-long cement pipes that have windows to allow fish and aquatic creatures to use. The pipes have been successful at creating new habitat, and there is growing interest in adding more LUNKER pipes on the South Platte River because they also satisfy flood control requirements.
- There are nine sensors along the South Platte River that take hourly readings. The data from these sensors are publicly available. Trout Unlimited is using the data to understand why fisherman are catching cold-water fish in a river that is not a cold-water river.

- Denver Trout Unlimited is hosting their 13<sup>th</sup> annual Carp Slam. The Carp Slam will be on September 7.

**Brad Evans – Concerned Citizen**

Brad Evans is a concerned citizen at Bear Creek Reservoir.

**Donny Roush – Denver Department of Public Works**

- The CSU Youth River Festival is occurring on the August 31 (the Saturday of Labor Day weekend) at Carpio-Sanguinette Park.
- Denver Department of Public Works is currently reviewing their macroinvertebrate charts. For those who would be interested in reviewing the materials, please contact Donny Roush.

**Rachel Crouch – Bluff Lake Nature Center**

The Bluff Lake Nature Center recently finished their ten-week summer camp program. During the summer camp, they piloted a new trailer that contained river exploration equipment. Their next step is going to be installing a raft around the trailer that contains educational material.

**Mike Smith – RenewWest**

RenewWest is partnering with the Colorado State Forest Service to develop a state carbon plan. The carbon plan is a part of the Colorado State Forest Service’s Forest Action Plan revision that occurs every 10 years.

**Jim Dorsch – Metro Wastewater Reclamation District**

Metro Wastewater Reclamation District monitors water quality on the South Platte River to the Nebraska border. They also monitor the fish and insects in the river so that the district knows how wastewater is influencing the quality of the South Platte River

**Amy Conklin- Barr-Milton Watershed Association**

- Denver Water is submitting a request to the EPA to approve Denver Water’s plan to reduce lead contamination in the water supply. Denver Water’s plan is to replace lead service pipes throughout their service area.
- Denver Water’s request will be submitted by the end of the day. Amy Conklin and Alison Witheridge will send more information to Sam Haas to distribute to the group.

**Karl Brummert – Denver Audubon Society**

Denver Audubon Society is looking to engage and partner in more conservation projects instead of developing their own. They are interested in habitat restoration projects along the South Platte River or in Chatfield that has a bird/avian component.

**Cindy Chang – Groundwork Denver**

- Groundwork Denver is currently focused on Bear Creek Watershed. This summer, Groundwork Denver continued fixing sprinklers for residents of Sheridan to reduce non-point source pollution.
- Groundwork Denver has also been involved in the Denver Water lead piping program. They have been providing filters in Westwood at West Colfax and monitoring to see if people are using filters and if the filters are reducing the lead in the drinking water.

**Dana Coelho – Metro Denver Nature Alliance (MetroDNA)**

Metro DNA recently initiated their regional conservation assessment. The assessment is looking at the seven counties of the Denver Metro Area, the Hydrologic Unit Code watersheds in the area, and opportunities to increase connectivity. The assessment will inform Metro DNA’s larger goal of developing a Regional Vision for People and Nature for the Metro Denver area.

## **Guadalupe Herrera – U.S. Department of Housing and Urban Development**

Guadalupe Herrera is interested in water overall and as it pertains to housing development, transportation, and health.

## **PRESENTATION: JOCELYN HITTLE, DENVER PROGRAMS AND SUSTAINABILITY AT COLORADO STATE UNIVERSITY**

Jocelyn Hittle, Senior Director of Denver Programs and Sustainability at Colorado State University, presented on the overview and progress of the National Western Center project. Her comments are summarized below, and her presentation slides are attached to this meeting summary.

### ***Background***

- Colorado State University (CSU) is one of the partners planning and developing the National Western Center. The location of the National Western Center is where the current National Western Complex is. This area is north of RiNO, east of Globeville and west of Elyria-Swansea. The National Western Center is also adjacent to the South Platte River.
- CSU is actively identifying opportunities for collaboration. CSU does not want to create something new but would rather build off the ongoing work in Denver. Among the buildings of the new development, there is going to be a building dedicated to water education. Although the building is a CSU project, CSU wants the water building to be a platform for organizations and people to share information from different interests.
- One of the goals of the project is to take the cultural institution that is the National Western Complex and transform it into a place for public learning. The research at the National Western Center will be hyper applied and focused on elevating the work of practitioners.
- The partners are constructing two new bridges across the South Platte River, a new stock yard, a new equestrian center, a new pavilion, and a new livestock center. There will also be an RTD line that should be open next year. Other areas of the National Western Center are for private sector development and could result in commercial buildings, offices, hotels, etc.
- The old National Western Complex will remain until the National Western Center is complete. The development of the National Western Center is divided into complex phasing.
- Jocelyn Hittle showed a video rendition of what the National Western Center will look like. The bridges will be multi-modal and may even allow for equestrian transportation. There will also be solar panels on some of the buildings.
- Along the South Platte River, anything within the 10-year floodplain line is under the purview of the Denver Urban Waters Partnership and the Environmental Protection Agency.

### ***CSU Education and Building Programming***

- CSU is helping develop three buildings dedicated to water, food, and animal health. These buildings are not meant to be public-facing buildings. In the water building for example, people could see native fish in tanks and play with sand tables. There will also be a K-12 educational component alongside a higher education and academic component. There will be master's and certificate programs that engage with all three CSU campuses. The buildings will also serve as a space for events.
- The CSU Animal Health Complex is still in a conceptual phase, but there are plans for K-12 education where students can learn from scientists. There may be a space for people to observe veterinarians who will have microphones to talk with the audience. People may also be able to watch horses train and work with horses as a form of therapy. CSU is partnering with the Dumb Friends League to develop programming.
- The food building could contain vertical glass containers that grow food. There may be a kitchen and food lab and a place for companies to introduce new food products for people to taste. There may also be a focus on urban agriculture, such as rooftop gardens.

- The discussion about the CSU water building originated from SPRUWP. The water building will serve as a space for people to convene and educate about water. K-12 education is an important component of that education. Trout Unlimited, South Platte River Environmental Education, and Environmental Learn for Kids have all been involved in the conversation about K-12 educational programming. There may be opportunity for children to go to the South Platte River with a teaching lab to test water quality or look at stormwater retention ponds.
- The water building may also include a policy institute that researches applied policy and provides support for new innovations, incubation, and acceleration of new companies. Another vision is to create a Denver Water Compliance Laboratory that monitors and researches water quality.
- Another research team is looking at the site as a living laboratory. They are studying the effects of the project before, during, immediately after, and ten-years after the construction of the National Western Center. There will be opportunities for bio blitzes, macroinvertebrate sampling, and other forms of citizen science.
- CSU is thinking about the local community and how to engage with people in the local area. This may include bringing in STEM programs from nearby schools and providing a pet clinic and free vaccines.

### ***Clarifying Questions***

SPRUWP members asked clarifying questions following Hittle's presentation. Questions are indicated in italics.

*Is the Dumb Friends League Solutions Hospital moving to the facility?*

A part of the Solutions Hospital is moving to the facility, but they are still keeping their old buildings.

*There is a good amount of glass in the visual renditions of the building. Is the glass bird friendly?*

Yes, the glass will be bird friendly. Not all of the glass that was in the drawing rendition of the building will remain in the final product.

*Has the CSU budget for the project increased?*

The total budget has not changed, but there has been a shift in where CSU has allocated the finances. Overall, there has not been an increase in the expensiveness of the project.

*How far along are the development of the partnerships?*

None of the partnerships are written into contract. There have been initial conversations with groups like Trout Unlimited. The space of the building is evolving as CSU continues to partner with environmental education organizations and design an educational curriculum. As far as the food building, they are not far into the design process yet.

*What is the timeline for constructing the National Western Center?*

The partners should complete the construction of the Animal Health Complex by August 2021. The other buildings are set for some time in 2022. The construction of the first building will begin by the end of the year. The timeline is becoming more detailed as they get closer to the start of construction.

*Will it be possible to take trout tanks to different school classrooms? If so, those tanks will be expensive and should be a shared resource among partners.*

CSU is being careful on assigning responsibility for shared assets. CSU can continue talking with Trout Unlimited to see if portable trout tanks are a possibility.

*Is CSU partnership with the Denver Museum of Nature and Science?*

The Denver Museum of Nature and Science and History Colorado are both programmatic partners. There will be a space for place-based learning for each of the organizations that exists outside of their own facilities. They may also organize summer camps from the National Western Center.

*I've heard there are number of water innovations in the redevelopment, including stormwater green infrastructure and infrastructure to collect rain and stormwater. What is the total catchment of the center?*  
Not sure about the total catchment. There is another ongoing project called the Platte to Park Hill project that are related to green infrastructure and stormwater management. At the National Western Center, CSU is working Metro Wastewater to move two wastewater pipes above ground in a mutually beneficial way to reduce affluent temperatures. They are also installing a dual plumbing system for irrigation and restroom use.

*Connecting youth and the community to the National Western Center can be tricky. What are the plans for engaging with youth on the National Western Center?*

CSU is organizing youth coalitions that focus only on the National Western Center. Engaging the local community can be tricky when there are many changes going on in a neighborhood that has already seen a lot of change. CSU welcomes thoughts on how to approach those relationships.

### **PRESENTATION: BRIAN MULLER, UNIVERSITY OF COLORADO BOULDER**

Brian Muller, an associate professor of environmental design at the CU Boulder Community Engagement, Design, and Research center, presented on two topics: 1) how to consider climate change in stormwater planning and 2) the results of a joint student-faculty community science research project on green infrastructure opportunities along the Front Range region. His comments are summarized below, and his presentation slides are attached to this meeting summary.

#### ***Background***

- At the Community Engagement, Design, and Research (CEDaR) Center, the faculty and students focus on interdisciplinary and community-focused research. They spend time going to communities and engaging with city governments to find out what their priorities are. The idea is that the faculty and students will address community needs at the same time they address community needs.
- The environmental design program at CU – Boulder is three years old. It originally started as the environmental design program at University of Colorado – Denver architecture and planning program until the program split. The environmental design program has 600 undergraduates and a professional program.
- As a part of community-based research, CEDaR builds relationships over long periods of time. The projects go through a variety of phases, which approximately takes two to three years to complete.
- Faculty teams consist of faculty with different areas of expertise. For example, some have backgrounds in neighborhood design, community-based data, housing affordability, energy efficiency, resilient infrastructure, and engaging with children and youth.
- CEDaR faculty and students work with community groups to identify projects. The budget of the center is small, but they have still worked on 100 separate projects and trained 700 university students. The center has two programs focused on children and youth and have engaged over 4,000 young people.
- There is an upcoming conference: Growing Up Boulder where the city will engage with you in city planning issues, like open space and transportation plans. The purpose of this conference is to create a child-friendly city.

#### ***Climate Change in Stormwater Planning***

- The center developed an impervious forecast model, which framed much of the center's work around impervious cover and green infrastructure.
- This research began when faculty and students became interested in how stormwater management is changing, what are the consequences of the changes, and what are the policy implications of those consequences.

- The research looked at different types of impervious cover, such as streets and buildings. There are many different variables which affect impervious cover, which policy has to address.
- The researchers were interested in specific types of change for each neighborhood. They examined new duplexes and garages affected impervious surface cover. In the later models of the study, there were fewer people but more impervious surfaces.
- They used three different urban growth models, the Denver Regional Council of Governments model, the CEDaR model, and the Denver Blueprint Plan model, to project growth in Denver. After projecting these models, they found as many as 14,684 new acres of impervious cover in the City and County of Denver by 2040.
- The researchers then analyzed how different policies affect impervious cover. Current policies, like issuing MS4 permits, are effective, but they do not manage smaller commercial sites and residential sites. Under the MS4 permit policy, there would be at least 10,000 acres of untreated impervious cover.
- Through their models, the researchers found that it is difficult to change policy to treat the 10,000 acres of impervious cover. Tree planting and changing permitting rules decreased the number of impervious acres but not to a significant extent.
- Faculty and students modeled how much rainfall planted trees would intercept with LIDAR technology. In the model, they looked at the characteristics of the trees, different frameworks of interception, and the degree of the storm. Trees are effective at intercepting water in mid-range storms, but they do not effectively intercept rainfall during big storms. Trees also do not have leaves during parts of the year when there are storms. This conclusion makes researchers question the effectiveness of relying on trees in big storm and under different climate change scenarios.
- The researchers ran different stormwater runoff models under different rainfall scenarios. They looked not only at hazardous flooding but also at nuisance flooding. Nuisance flooding is inconvenient and likely to cause property damage, but it is not dangerous. The researchers asked under Denver zoning rules, how is development going to occur and what are the effects of that development on flooding?

### ***Green Infrastructure Opportunities along the Front Range***

- Some of the faculty have been analyzing stormwater-related issues at the neighborhood scale in Westwood, Park Hill, East Colfax, and Elyria-Swansea. They have also been trying to find design alternatives to address those issues.
- In Westwood, students mapped the Westwood neighborhood to examine different design needs. Over the period of time, the students and faculty developed strong relationships with the neighborhood associations.
- CEDaR is also researching the effect of rain gardens on stormwater. They identified twelve rain gardens and are currently conducting a longitudinal assessment of them. They are primarily studying rain gardens at non-profits and private property, not large city efforts.
- They discovered that it is difficult for individuals to grown rain gardens because it requires knowledge and attention. Although some rain gardens have been successful, the success is intermittent.
- Students from CEDaR examined pollutants on the streets of Westwood. They evaluated blocks of Westwood in a detailed way to identify unconnected gutters and down spouts. If CEDaR can continue their research, they will develop an interesting perspective on green infrastructure in Westwood.
- Researchers have studied sustainable communities and public art initiatives. There has been research into how many units can be placed into a single family unit. This research asks how can we increase density in a way that is more efficient in handling urban heat, runoff, and other environmental issues? It is not simply a tradeoff between density and environmental management, but planners and professionals need to think about both in a serious way.

- In Downtown Longmont, there is a project about designing various alleyways and closets, and there have been several public meetings where CEDaR has introduced design concepts.
- Researchers have analyzed the walking infrastructure and walking habits in Westwood. The conversations continued over three years and examined how people walk and what are the safety issues. Through their conversations, they heard that environmental issues are important, but people are more worried about their safety in the streets and safety from crime.
- People do not use crosswalks and stop lights, which demonstrates how issues can sometimes be a matter of behavior, not only infrastructure. Some people, for example, do not want trees because they are worried about trees falling on their cars or that the city will make them responsible for disease on the trees or that they would rather have a vegetable garden.

### ***Clarifying Questions***

SPRUWP members asked several clarifying questions after Muller's presentation. Questions are indicated in italics.

*It is generally considered that urban structures are better than suburban covers. Have you integrated density into the metrics when examining impervious cover?*

Yes, but the numbers are not currently available.

*Is it possible that impervious cover per person has decreased?*

The patterns nationwide and globally suggest that impervious cover per person decreases with the growth in the city. It is important to consider how some people use more impervious covers than others.

*How do cities find you for research needs?*

CEDaR engages in project conversations frequently. Many times the conversations are more about whether CEDaR has the capacity for the project.

*Many times, communities do not have the resources for implementation, and it is not helpful to have a design that no one implements. How does the design component of these projects connect to implementation?*

CEDaR responds to requests for research projects. They do not create designs for the sake of creating designs but do so when someone else requests their services.

*Changing the infrastructure takes education. Educating people about the difference between an annual or perennial or why grass takes up too much water is important. How does CEDaR engage in community education during their projects?*

CEDaR focuses mostly on design work. They have demonstration gardens, but they do not have the resources to educate and implement. Normally that is the responsibility of another organization.

*What does it cost the city to work with CEDaR?*

CEDaR charges for their research or creates a joint-funding plan with the city, but the cost is very inexpensive. CEDaR does also raise foundation funding to support their programs. This allows them to conduct some projects without charging the community.

*Are there any faculty from the school of education?*

There are two faculty members from the CU Engage partnership.

### **NEXT STEPS**

- The next SPRUWP meeting will be on November 19 (location TBD). The Institute for Sustainable Communities will lead the group in a series of interactive exercises.

- SPRUWP's Science and Data and Education and Outreach Subcommittees are hard at work and welcoming new members. Interested SPRUWP members should talk to Sam Haas about participating.